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THE APPLICATION OF A CLASSIFICATORY METHOD TO MISSISSIPPI VALLEY ARCHAEOLOGY

A PART OF A DISSERTATION SUBMITTED TO THE FACULTY OF THE DIVISION OF THE SOCIAL SCIENCES IN CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ANTHROPOLOGY
1935

By
THORNE DEUEL

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APPENDIX I

THE APPLICATION OF A CLASSIFICATORY METHOD TO MISSISSIPPI VALLEY ARCHAEOLOGY

By THORNE DEUEL

In order to show the relationship of sites to one another and determine their position in the greater archaeological picture, whether in time or space, it is necessary to compare their cultural content. A convenient method of comparison is through a classification of the sites, based on the traits indicated by the artifacts found and other evidence gleaned during their discovery. The system proposed by W. C. McKern and subsequently modified by a conference of midwestern archaeologists constitutes a convenient classification.[1] The writer proposes, in the pages that follow, to apply this plan to a portion of the known archaeological material of the Mississippi drainage and the Atlantic seaboard.

This ideal scheme proposes (as elsewhere noted)[2] that the largest unit, or "pattern,"[3] be defined as a group of communities which have in common the fundamental determinants; the next smaller, the "phase," be a group of communities which have a small but significant number of determinants in common; the next, or "aspect," "a group of communities having an approximate majority of determinants in common"; and the smallest, the "focus," "a group of communities with a preponderating majority of determinants in common."

There appear to be two methods of attacking this problem: (1) by working from the larger units downward or (2) by beginning with the smallest units and successively combining them into larger ones.[4]

[1] Cole and Deuel, *Rediscovering Illinois*, p. 34. [2] *Ibid.*, pp. 34–35.

[3] The term "pattern" was adopted in lieu of "basic culture" by the Conference on Midwestern Archaeology held at Indianapolis in December, 1935. At that time a still larger unit, the "base," was defined.

[4] Whether one works from the larger units toward the smaller, or the reverse, there is one fundamental similarity in the approaches—the component or complex of traits at actual sites must form the basis of the classification.

Students familiar with the archaeology of the eastern half of the United States have for some time recognized at least two major groupings which might be called "patterns." But when these are recognized, it at once becomes evident that each one can be further subdivided. In connection with the Pictorial Survey of the Mississippi Valley, the writer has had an opportunity to see the materials and go over the field notes gathered by various institutions and individuals over the country. On the basis of the Survey, the division of the materials and other traits into larger units as proposed in the classification seemed justified. It also appeared that the smaller units could be set up in the same manner.[5]

The writer has sought, in a study based on a portion of the material available, to put this impression to actual test.[6] For this purpose he endeavored to select those determinants which seem to differentiate the two great patterns, the Woodland and the Mississippi. The next step was to see if these patterns could, on the basis of actual materials, be separated into the smaller units suggested. It seems possible from this analysis to group the materials and traits into patterns, phases, aspects, and foci, and to determine which sites belong together and constitute a community.[7] If this is true, it would of course be entirely possible to reverse the process proposed in this paper and combine in turn the various communities into foci, the foci into aspects, etc., thus constructing the larger units by this procedure.[8] It is realized that in the course of further investigation more and more communities will come to light, many new foci and aspects will appear, and even new phases and patterns are possible. Conse-

[5] On the discovery of a community differing considerably from the nearest related ones, it is often impossible to define its focus. It is often possible and highly desirable, however, to indicate to which of the larger units the manifestation belongs. Again a number of sites from different foci and aspects may yield the determinants of the pattern and phase while those of the focus may, for the time being, not be clearly definable. It is to such cases that the method about to be described is particularly applicable.

[6] The complete study, under the same title, is on file at the University of Chicago.

[7] In practice the method of defining the focus will generally be the same in both the methods discussed.

[8] This has actually been done by James B. Griffin in "An Analysis of the Fort Ancient Culture," *Notes from the Ceramic Repository for the Eastern United States* (Ann Arbor, 1935), No. 1. He has taken the five components—Feurt, Baum, Gartner, Madisonville, and Fox Farm (Ky.)—analyzed them into traits, and, on the basis of similarities, has combined the last four into two foci and all of them into a single aspect.

quently it seems highly desirable at this time that we should attempt to define the larger units in order to be able to place this enlarging body of knowledge into a working scheme. It is realized that many of the conclusions held today will probably be modified, but the method here indicated appears to be a practicable one for testing and analyzing material.

It should be borne in mind that only a small portion of the material used is indicated in this paper. Although the classification for only one of the patterns into the smaller units is given, the same method can be used for the Woodland or any other. Whereas the great divisions may have a trait complex or a portion of it in common —such as pottery, for example—certain other traits serve to distinguish and identify each unit.

In Table 1 are listed the traits that may be considered diagnostic of the Woodland and Mississippi patterns. These determinants are chosen from a longer list previously noted as characteristic of the two great cultural divisions.[9]

The method used in completing Table 1[10] is as follows: Complexes have been used wherever possible and are weighted according to the number of individual traits they contain. Thus under the Woodland ceremonial complex each of the four parts, viz., (*a*) burials predominantly flexed, (*b*) burials in mounds, domed or conical, primarily for burial purposes; (*c*) grave goods scarce or absent; (*d*) when grave goods are present, chiefly of stone, very rarely of pottery—each part is given a weight of one, making a total of four for the complex. If the complex is predominantly as stated, full weight is credited to the site. If it indicates roughly one-half the determinants of one pattern, a question mark (?) is accorded the complex. If the individual determinants found reflect less than half of those for any complex, it is left blank. If the complex for any site shows a majority for the pattern opposed to that in which most of its determinant traits lie, full

[9] Thorne Deuel, "Basic Cultures of the Mississippi Valley," *American Anthropologist*, XXXVII, Part I, No. 3 (1935), 429–45. Also Cole and Deuel, *op. cit.*, pp. 36–38.

[10] The sites used in Table I include Gooden F°85 and F°86, Dickson F°34 and F'35, Morton F°11 and F°14, Hummel F'574, Blue Island, and Fisher in Illinois; Trempeleau, Grand River, and Aztalan in Wisconsin; Moundville in Alabama; Etowah site in Georgia; Indian Knoll and Fox Farm in Kentucky; the Gordon site in Tennessee; the Blood Run site in Iowa; Baum, Gartner, Feurt, Madisonville, Turner, Adena, and Mound 17, Hopewell group, in Ohio. F°14 and F'35 refer to the upper, Fisher to the middle components only of these sites.

TABLE 1

Pattern Determinants

Weighting	Patterns	Determinant Complexes	Fo85	Fo86	Fv35	Fo11	Trempeleau	Turner	Adena Md.	Mound 17, Hopewell Group	Indian Knoll	Fv374	Baum	Fo14	Fo34	Madisonville	Aztalan	Etowah Md. and V.S.	Gordon	Grand River	Blood Run	Fisher	Fox Farm	Gartner	Feurt	Moundville	Blue Island
4	Woodland Pattern	1. (*a*) Burials predominantly flexed, (*b*) in mounds domed or conical, primarily for burial purposes. (*c*) Grave goods scarce or absent; (*d*) when present chiefly of stone, very rarely of pottery	4	4	+	4	4	?	?	+	?	+	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
3		2. (*a*) Use of core (and heavy flake) for projectile points and knives, (*b*) with primary more important than secondary flaking; (*c*) resultant forms including coarse-stemmed and corner-notched varieties	3	3	3	3	3	3	3	3	3	3	..	..	*	..	..	..	..	..	..	..	..	..	..	..	..	..
1		3. The grooved ax and/or stone gorgets, bird-, boat-, bannerstones, etc.	—	1	—	—	—	1	1	1	1	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5		4. (*a*) The grit-tempered (*b*) amphora (*c*) with conoidal (or truncated conoidal) base, (*d*) general simplicity of form, and (*e*) incised or impressed designs	5†	5‡	5	?	5	5	—	5	—	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13		Total	12	13	§§	7	12	9	4	§§	4	§§	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
3	Mississippi Pattern	1. (*a*) Burials predominantly extended, often multiple in type; (*b*) grave goods abundant or moderately so, (*c*) include chiefly pottery and objects made from shell, bone, and copper	..	..	..	..	..	?	?	..	..	..	3	3	3	3	+	3	3	3	+	3	3	3	..	3	3
3		2. (*a*) Use of small (*b*) flat flakes for projectile points and knives with triangular blades, (*c*) secondarily chipped edges	..	..	..	..	..	..	..	..	..	..	3	3	3	3	3	3	?	3	3	3	3	3	3	3	3
3		3. (*a*) Polished stone forms include the celt and (*b*) the chunky stone or discoidal. (*c*) Bone, shell, copper, and clay furnish material for large proportion of implements and ornaments	..	..	..	..	..	..	..	..	..	..	3	3	3	3	3	3	3	—	—	3	3	3	3	3	3
1		4. The equal-armed pipe and its variants, in clay or stone	..	..	..	..	..	..	..	..	..	..	1	1	1	1	1	1	—	—	1	1	1	1	1	1	—
5		5. (*a*) Flattened globular pottery vessels, (*b*) generally shell- or bone-tempered, (*c*) with globular or modified base, (*d*) a variety of shapes, wares, and surface treatment predominate. (*e*) Handles and secondary features generally present	..	..	..	..	..	..	..	..	..	..	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
15		Total	..	..	..	..	..	..	..	..	..	..	15	15	15	15	$\frac{12}{12}$	15	11	11	$\frac{9}{12}$	15	15	15	12	15	14

* Very rarely.

† The amphora may be lacking. Type 5 pottery occurred.

‡ Sherds rare and shapes indeterminate.

§ Denominators indicate total number of determinants to be expected due to the nature of the site; numerators and integers those actually present (see p. 211, n. 11).

weight is noted in the corresponding space in that pattern—as, for example, the Woodland burial complex for Feurt.[11]

In looking over the results of the test it will be noted that some of the sites do not exhibit complete accord with the patterns in which the majority of their complexes fall. Feurt, for example, has a ceremonial complex almost as definitely Woodland as F°85—a most unusual situation for sites otherwise Mississippi.[12] However, with a majority of twelve out of fifteen, Feurt should probably be classed as Mississippi, as has been done in the past. Grand River presents a situation similar to Feurt. These mounds apparently yielded a majority of extended skeletons, or those extended with the feet slightly drawn up, and a lesser number of flexed, semiflexed, and bundled burials. A bare majority of the complex appears to be Mississippi. The Gordon component of the Mississippi seems to be identical to others generally included in the Gordon-Fewkes manifestation, which include the missing determinants. It is possible that the projectile complex was omitted in the original report through oversight. Similarly, the discoidal is found at the Blood Run village, while the polished celt has not been reported. They have been found in sites considered by Professor Keyes[13] to be very closely related and, with a larger sampling, will probably appear at Blood Run also, giving a substantial majority.

Much the same situation holds for sites usually known as Hopewellian. At Trempeleau, for example, the burial positions consist largely of two types, the extended and the bundled, generally as multiple burials, in specially prepared burial mounds, with grave goods scarce rather than otherwise (considering the number of dead), without pottery, with considerable stone, but also with copper and bone

[11] The plus sign (+) signifies that the type of site would not ordinarily be expected to yield the complex. Thus Mound 17, Hopewell group, seems not to have been erected for burial purposes. Village sites do not ordinarily yield burial traits nor cemeteries house remains. The minus sign (−) signifies that the trait is not reported from a site, or the description is inadequate.

[12] At Feurt a few grooved axes are reported to have been found by amateurs. Baum yielded two others, and Blue Island one. Similarly, at most of the Mississippi sites in the Ohio region used in this paper the large notched or stemmed projectile points, apparently typical of Woodland, occur. Whether or not made by the Mississippi group, they are relatively scarce and so are disregarded in classifying.

[13] Personal communication from Charles R. Keyes in 1931.

objects. The case of this complex for Woodland, while admittedly weak, seems to the writer to favor that pattern. Much the same conditions exist at the Turner site.[14] Taking into consideration that most of the other Woodland determinants are present and the Mississippi complexes are lacking, it seems justifiable to place Trempeleau and Turner in the Woodland pattern.

Morton F°11 shows a bare majority; Indian Knoll and the Adena Mound less than half the determinants for Woodland and none for Mississippi. Adena and F°11 are known only from burial sites, while Indian Knoll is probably a community. In all three instances the pottery type is practically unknown, due either to the small amount recovered or to inadequate description. Therefore none of these components can be classed as Woodland. The most that can be said at this time is that they resemble Woodland more than they do Mississippi.

Tentatively we may now summarize the results of applying the classification system to the sites chosen as follows:

Woodland Pattern	Mississippi Pattern	
	Grand River	Gordon
F°85	Baum	Blood Run
F°86	F°14	Fisher
F^{v}35	F°34	Fox Farm
Trempeleau	Madisonville	Gartner
Turner	Aztalan	Feurt
Mound 17, Hopewell Group	Etowah Md. and	Moundville
F^{v}574	V.S.	Blue Island
	Unclassified	
Adena Mound	F°11	Indian Knoll

The Mississippi pattern[15] is now seen to separate into two rather distinct groups, or phases, based on traits generally considered diag-

[14] The burials at the Turner site lay in a low eminence, apparently not a mound. They were generally in the extended position, occasionally as multiple burials. Of the 56 described, 42 had few (one or two) unimportant or no accompanying grave goods, 8 had a moderate (two or three objects) and 6 a profuse amount (five or more). The "altar" in Mound 4 had a very large collection of artifacts, some of them very fine in workmanship and artistic in form and decoration, and may have been a sacrificial offering rather than cremations. Pottery occurred rarely in graves, stone frequently, as well as objects of other materials.

[15] The Woodland pattern could be divided into smaller units by the same method, though somewhat less easily, due in part to the fact that it has been less exhaustively investigated by archaeological students and also to the paucity of materials found at individual sites.

nostic of each. The lists of determinants are probably longer than given and in addition to those here used as diagnostic may include the following:

UPPER MISSISSIPPI PHASE

1. Grooved clubheads
2. Pottery vessels with notched lips
3. Cord-roughened pottery vessels
4. The "hairspreader"
5. Arrowshaft finishers—symmetrical in shape with a single central groove

MIDDLE MISSISSIPPI PHASE

1. Copper-covered wooden earspools and other objects similarly treated
2. Engraved gorgets of shell and *repoussé* copper plaques depicting human, animal, and bird forms
3. Elaborate ornaments or insignia in copper, stone, and other materials and/or shown on engraved shell gorgets and plaques of *repoussé* copper
4. Textile-impressed pottery
5. Ceremonial swords of skilfully chipped flint 12–30 inches in length

These determinants are omitted in Table 2[16] as not generally reported for the sites selected for this study. The Mississippi components so classified in Table 1 are now separated according to the determinants listed, into the Upper and Middle phases.[17] Each determinant has a weight of one.

In the Upper phase all except Blue Island, Blood Run, and Grand River exhibit a very large majority of determinants in common. Blue Island was a limited excavation, due to its location in the thickly populated section near Chicago. Blood Run is represented by a surface collection and the results of one excavated mound. Grand River represents the excavation of several mounds of a site but apparently little of the village. More exhaustive examination might show a larger percentage in these sites in favor of the Upper Mississippi phase. In these three sites there seems little influence from the Middle phase,[17] so we are probably justified in placing them provisionally in the Upper.

The remaining Mississippi sites contain nearly all the determinants selected as diagnostic of the Middle phase, except the Gordon site.

[16] In Table 2 and succeeding tables the determinants of higher units are not repeated.

[17] In many northern sites—e.g., F°14 (Middle phase) and Madisonville (Upper phase)—there often occurs a scattering of determinants of the opposing Mississippi phase, which is found in adjacent territory.

TABLE 2

PHASE DETERMINANTS

Weighting	Determinants	Baum	Gartner	Feurt	Fox Farm	Madisonville	Blue Island	Fisher	Blood Run	Grand River	Aztalan	Etowah Md. and V.S.	Fᵒ14	Fᵒ34	Gordon Site	Moundville
	Upper Mississippi															
1	Mounds produced incidental to burial	×	×	×	×	×	–	×	×	×	....	....	×	×	....	....
1	Houses with circular or elliptical floor outlines	×	×	×	+	×	–	×	+‡	+	....	....	....	....	×	....
1	Pipe: projecting stem variety of equal-armed type	–	×	×	–	×	–	×	×	–	×	....	×	....	....	....
1	Personal adornment, use of perforated canine teeth of animals for	×	×	×	×	×	–	×	–	–	....	....	....	....	....	....
1	Pottery: common olla generally the sole form	×	×	×	×	×*	×	×	×	×	....	....	....	....	....	....
1	Pottery: a utilitarian ware usually the only one present	×	×	×	×	×*	×	×	×	×	....	....	....	....	....	....
1	Pottery: chief techniques of decoration are trailing, broad-line incising and punctating	×	×	×	×	×	×	×	×	×	....	....	....	....	....	....
1	The drawshave (bone beamer)	×	×	×	×	×	×	×	–	×	×†	....	×†	....	....	....
1	Flat, perforated needle from deer ribs and other animal bones	×	×	×	×	×	×	×	–	–	....	....	....	....	....	....
9	Total	8	9	9	7/8	9	5	9	5/8	5/8	....	....	....	....	....	....

* Bowl and effigy forms, and some painted vessels at Madisonville, constituted a very small minority of the pottery found.

† No drawshaves were found by the Milwaukee Public Museum expeditions at Aztalan although they are reported by a previous investigator. Only one was found in camp refuse near Fᵒ14. They are reported very infrequently from other Middle Mississippi sites and probably do not constitute a pattern determinant.

‡ Surface collection from village site; one mound only, excavated at Blood Run site.

TABLE 2—*Continued*

Weighting	Determinants	Baum	Gartner	Feurt	Fox Farm	Madisonville	Blue Island	Fisher	Blood Run	Grand River	Aztalan	Etowah Md. and V.S.	Fo14	Fo34	Gordon Site	Moundville
	Middle Mississippi															
1	Truncated pyramidal mounds, often in groups, employed primarily as substructures	....	....	....	....	....	....	....	....	....	×	×	+	+	×	×
1	Houses with rectangular floor outlines	....	....	....	....	....	....	....	....	....	×	−	+	+	....	−
1	Wattle-and-daub-house walls, as indicated by lumps of dried clay exhibiting cane or grass impressions	....	....	....	....	....	....	....	....	....	×	×	+	+	×	×
1	Equal-armed pipe in varieties other than the projecting stemmed	....	....	....	....	....	....	....	....	....	−	×	×	×	−	×
1	The employment of marine, cut marine shells, and pearls for personal adornment	....	....	....	....	....	....	....	....	....	×	×	×	×	×	×
1	Pottery: effigy, beaker, plate, and other specialized forms of common occurrence	....	....	....	....	×*	....	....	....	....	×	×	×	×	×	×
1	Pottery: two or more wares present	....	....	....	....	×*	....	....	....	....	×	×	×	×	×	×
1	Pottery: narrow trailing, incising (while clay is plastic); scratching, etching, etc. (after drying or firing), are the chief techniques of decoration	....	....	....	....	....	....	....	....	....	×	×	×	×	×	×
1	Pottery: designs commonly include bands or chains of hachured triangles, arches, scrolls, and spirals	....	....	....	....	....	....	....	....	....	×	×	×	×	−	×
1	Pottery trowels	....	....	....	....	....	....	....	....	....	×	−	−	×	×	×
1	"Awl-sharpeners"	....	....	....	....	....	....	....	....	....	×	−	×	×	×?	−
11	Total	....	....	....	....	....	....	....	....	....	10	8	$\frac{7}{8}$	$\frac{8}{8}$	8	9

The houses at this site are circular, not rectangular in shape, and pipes, marine-shell ornaments, and three other determinants were not reported as found here. Closely related sites like Tolu and Kincaid exhibit most of the diagnostic traits not noted for Gordon, although they are generally identical in the others (except house plan). It might also be stated that these sites, while containing some of the Upper-phase traits, also contain a larger number of Lower-phase determinants; but, on the whole, they seem to belong to the Middle phase. The Gordon site also probably belongs to the Middle phase.[18]

We are no doubt justified in placing the sites tentatively as follows:

UPPER PHASE	MIDDLE PHASE
Baum	Aztalan
Gartner	Etowah
Feurt	F°14
Fox Farm	F°34
Fisher	Moundville
Madisonville	
PROBABLY UPPER PHASE	**PROBABLY MIDDLE PHASE**
Blood Run	Gordon
Grand River	
Blue Island	

The Fort Ancient "culture" has long been recognized as a unit by students in the field. As this group of sites has certain traits or determinants that set them apart from another group of sites in Iowa, Minnesota, and Wisconsin, it may be considered as constituting an aspect. Some of the traits of the westerly unit which apparently are not shared by the more eastern one include:[19]

1. Pipes, disk subvariety of the projecting stemmed variety
2. Profusion of thumbnail scrapers
3. Arrowshaft finishers generally perfect, in pairs, associated with burials
4. Flat sheet-copper ornaments, perforated for suspension

[18] In the longer study several of the sites now classed as Middle phase were placed in the Lower phase. Studies of the past year have indicated that the earlier conclusions were in error and that all sites used in this table, not belonging to the Upper phase, almost certainly pertain to the Middle.

[19] W. C. McKern, personal communication, 1931.

These may be considered part of a group of aspect determinants, which are diagnostic of the Oneota aspect of Upper Mississippi.[20]

The determinants generally common to the Fort Ancient "culture" or aspect are given in Table 3. Each trait again has a weight of one. Probably many other determinants exist. These could be determined more completely by the direct method of analyzing the individual components.

TABLE 3

FORT ANCIENT ASPECT

Weighting	Determinants for Fort Ancient Aspect	Baum	Gartner	Feurt	Fox Farm	Madisonville	Fisher	Blue Island
1	Stone box graves (including stone slabs associated with burials)	×	–	×	×	×	–	–
1	Pipes, stemless (vase-shaped, etc.)	×	×	×	×	×	–	×
1	Beads of bone	×	×	×	×	×	×	–
1	Pendants, cut shell, central circular excision, and two marginal perforations	–	–	×	×	×	×	–
1	Hairpins or "feather supports"	×	×	×	×	–	–	–
1	Mandibles (and maxillaries), animal, cut sections	×	×	×	×	×	×	–
1	Antler cylinders, solid, both ends convex	×	×	×	×	×	×	×
1	Awls made from deer scapulae	×	×	×	–	–	×	×
1	Celtlike implements of antler	×	×	×	×	×	×	–
1	Weaving tool or wedge from deer metapodials, etc.	×	×	×	×	×	×	–
10	Total	9	8	10	9	8	7	3

Of the Upper Mississippi sites, all except Blue Island fall rather definitely into the Fort Ancient aspect, if our determinants are well chosen.[21] The results of applying the determinants may then be summarized thus:

FORT ANCIENT ASPECT	UNKNOWN ASPECT
Baum	Blue Island
Gartner	
Feurt	
Fox Farm	
Madisonville	
Fisher	

[20] The term "Wisconsin aspect" was provisionally suggested by W. C. McKern. At the Conference on Midwestern Archaeology at Indianapolis in December, 1935, the term "Oneota" was substituted for this aspect designation.

[21] From the longer study it was indicated that Fisher did not belong to either of the foci noted below. It seems to belong to the Fort Ancient aspect, possibly to a third focus.

Glancing through the reports by Mills and Shetrone[22] and Harlan I. Smith's *Ethnology of a Prehistoric Kentucky Site*,[23] it is readily seen that the more important sites of the Fort Ancient aspect seem to group themselves into two units, within which the sites are more closely related to one another than to any one in the opposing group. Baum and Gartner, on the one hand, Madisonville, Feurt, and Fox Farm, on the other, might then tentatively be considered as belonging to the Gartner and Madisonville focus, respectively. A test of this relationship in the longer study corroborated this impression but will not be repeated here. It should be stated, however, that the procedure employed there (and the more usual one to determine the diagnostic traits) in these instances is to list all traits for all components considered and check as determinants those occurring in a majority of sites in each of the determined foci.[24]

As previously stated, the Woodland pattern could similarly have been broken down into phases, aspects, and foci, or the Middle Mississippi phase into aspects and foci.

Similarly, the process could be reversed. For example, in Middle Mississippi, Dickson F°34, Morton F°14, Fouts village site F^{v}664, upper components of Whitnah F^{v}49 and Dickson F^{v}35, can be combined to form the Spoon River focus.[25] Possibly the Kingston Lake site in Peoria County and the Crable site in Fulton, when analyzed, will be seen to form parts of another, the Kingston focus. S. A. Barrett has suggested a third, the Rock River, for Aztalan.[26] These three foci and related sites, as will be seen from an analysis, have a number of characteristics which set them off against other similar groups of sites in the Middle phase. We might consider them as forming the Monks Mound aspect.[26] Similarly, the Gordon and Fewkes sites in Tennessee, Tolu and Wycliffe in Kentucky, and Kincaid and others

[22] Published in the *Ohio State Archaeological and Historical Quarterly*, reprinted in *Certain Mound and Village Sites in Ohio* (Columbus, Ohio), Vols. I–IV.

[23] "Anthropological Papers of the American Museum of Natural History," Vol. VI, Part II (New York, 1910).

[24] In the longer study a numerical relationship between sites of the same focus was determined by dividing the total of all determinants present at a site by the total of all traits found there. The results for the five sites of the Fort Ancient ranged from 53 to 59 per cent.

[25] Cole and Deuel, *op. cit.*, pp. 200–202.

[26] "Ancient Aztalan," *Bulletin of the Public Museum of Milwaukee*, XIII (1933), 370–71.

in Illinois seem to constitute another aspect; Etowah, possibly the Hollywood Mound in Georgia, and the Moundville site in Alabama, may constitute another group or aspect, and the eastern Arkansas and some near-by sites may constitute still another. Combining these four larger units—the Monks Mound aspect, the Gordon-Fewkes, the eastern Arkansas, and the Etowah—we get the larger unit, the Middle phase of the Mississippi pattern. In the same manner the other phases could be defined and the Mississippi pattern determined. Of course, in such a study each component would have to be analyzed, the diagnostic traits of the focus determined, then the group of traits appearing in certain foci but not in others determined as diagnostic of the aspects, and so on until finally the determinant traits of the patterns would be combined into complexes.[27]

The procedure outlined above therefore seems to provide a convenient method of determining whether sites belong to one or the other of the two better-known patterns and their subdivisions. A similar method might be employed to determine other patterns and the position in the classificatory system of sites belonging to them.

[27] For an exposition of this method see Griffin, *op. cit.*